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ABSTRACT

A study was conducted of student attrition patterns in magnet schools in St. Louis, Missouri. An attempt was made to identify statistical patterns of attrition and to account further for these patterns by finding correlates in variables investigated through a telephone survey of school parents. Information was gathered for black and white students from three elementary schools and two secondary schools. Among the elementary schools studies, two schools showed significant black-white differences in attrition rates. Higher black attrition appeared linked to a decision regarding school location, while white attrition appeared to be linked to a decision to attend because of the school's specialty program. In the third elementary school no significant black-white differences were found. In the secondary schools no differences in attrition rates were found between black and white students at the same school. (Author/APM)

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Patterns and Correlates of Student Attrition in Selected St. Louis Magnet Schools, 1977 - 1979

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Introduction

High rates of student mobility are a fact of life in most large urban and surburban school districts and, I would suspect, in many smaller and rural districts as well. Most teachers and administrators recognize this fact. Many are very concerned about the effects of mobility on school programs and individual learning. Consideration of mobility levels and rates -- particularly the influence of these factors on net student enrollment -- is critical to system administrative planning. Mobility factors become even more critical to planning and management during periods of significant transformation in the district, such as the first year of system-wide mandatory desegregation that the St. Louis Public Schools (SLPS) are now undergoing. Yet, student mobility has not been widely researched as a topic in its own right; that is, researched as to the causes of student movement into and out of schools and as to the effects on personal and school situations of this movement.

The study reported here addresses student attrition in magnet schools. Attrition is one aspect of the general phenomenon of student mobility. For this study we have defined student attrition as the rate at which students are lost from a school enrollment, except by graduation, during a specified interval of time. Enrollment is determined as of the initial date of the stipulated interval and the terminating date of the interval is a matter of choice.

The choice of attrition as the research focus is explained at greater length below, but, essentially, this choice was made out of concern with observed parallels between system-wide and magnet school rates of attrition and the possible implications for decline in magnet school enrollment over time.

The purpose of this study was to identify statistical patterns of magnet school student attrition and to account further for these patterns by finding correlates in variables investigated through a telephone survey of magnet school parents. We looked at student attrition associated with three elementary and two secondary magnets in the period June, 1977-June, 1979. These schools were selected for the study because they were representative of relatively high or low overall rates of student attrition and/or of significant or non-significant differences between rates of attrition for black and white students. Data from one of the district's computer-based student information and accounting system files were used to compute the attrition rates. Then data related to the five selected schools were collected through a telephone survey of the parents of students enrolled in them.

The Historical Context

The two years between June, 1977 and June, 1979 lie midway in the four-year history of magnet schools as the principal means for school desegregation in St. Louis. Under a consent decree approved by the United States District Court for the Eastern District of Missouri in December, 1975, magnet schools were established in the St. Louis Public Schools and operated from September, 1976 through June, 1980. The number of

magnet schools varied somewhat from year to year, but for the most part, the magnet school program consisted of eight elementary and three secondary schools.

In March, 1980 the Eighth U.S. Court of Appeals overturned the 1975 consent decree and ordered the entire school system integrated to the maximun extent possible beginning with the 1980-81 school year. Magnet schools and alternative programs serve as the primary optional component under the new desegregation plan. The number of magnet schools has been increased to eleven elementary and middle, and four secondary schools. In addition, the programs of several of the previously existing schools have been substantially revised or changed. The number of students enrolled in magnet schools has increased from approximately 3500 in 1979-80 to 4800 in 1980-81. Magnet schools, while no longer the principal means for school desegregation in St. Louis, now serve not only a greater number of students, but a higher percentage of students as well. In 1979-80 magnet school enrollment comprised 5.2% of the district total student enrollment. Presently, magnet school students account for 7.9% of the total district enrollment.

Moreover, as a voluntary schooling option, magnet schools receive a great deal of attention as an instrument in the future of school integration, not only within the city of St. Louis, but with respect also to inderdistrict plans throughout the St. Louis metropolitan area.

Related Studies

The literature on the effects of desegregation has been mixed and inconsistent. Guskey, Nordstrom, and Wick (1980) have summarized several major

reviews of research studies and reports as being neither consistent nor conclusive in their findings. Guskey et al suggest that "divergent social, economic, and political factors which contribute to the structure and implementation of these programs confound attempts to systematically evaluate the effects of desegregation upon children, and seriously limit any generalization of results." (p. 4)

The problem of uniqueness of situation is also raised by Farley, Richards, and Wurdock (1980) as it relates to analysis of white enrollment trends in districts that have undergone desegregation. The authors have assessed analyses of the controversial "white flight" phenomenon and conclude that discrepant findings on this question have come about, in part, because various statistical models have been used that analyze different components of the variance in white enrollment change. Farley et al attempt to demonstrate through the application of several models to extensive data on enrollment trends in over 100 districts nationwide that the appropriate model to determine short-term effects of desegregation analyzes within-district components of variance; specifically within-district change in white enrollment to within-district change in segregation and other variables.

Perhaps the most extensive empirical study of magnet schools presently available, the Abt Associates report on the Emergency School Aid Act Magnet School Program (Royster, et al, 1979), investigated, in part, the question of school enrollments within districts having adopted magnet school programs. The authors conclude from their analyses that there "was little to directly tie magnet characteristics to district-wide desegregation effectiveness"; that is, that "it is possible to meet its racial composition and enrollment goals and to influence community attitudes, and yet have that program not be effective in district desegregation." (p. 73).

Rossell (1979) has developed the original analysis further to show the relation of district contextual factors to both magnet school efficiency and effectiveness.

Contextual factors do not tell the whole story of magnet schools. The Abt anlaysis did uncover relationships between certain school variables -- types of program, school location, and attendance -- and magnet program effectiveness (defined as a composite measure including size and racial composition of enrollment). There were also some interesting data on parents' perceptions of magnet school success. Commonalities in perceptions were apparent but these were not related to the measure of magnet program effectiveness.

Both Royster et al and Rossell have encouraged further research to explore issues surrounding magnet schools that bear more directly on participants' experience. Rossell suggested studies of magnet schools as vehicles to reduce community conflict and white flight associated with mandatory desegregation. Defining, in effect, the purpose of the study reported here, Royster and his colleagues argue that "much more research must be undertaken to assist school districts in attracting and retaining the student population and the support of the majority and minority communities." (p.73)

The present study thus may be seen as focusing and extending previous research by concentrating on the issue of student attrition, a critical factor in district-wide and magnet school enrollment trends. Moreover, it represents an attempt to give meaning to statistical characteristics by relating these to the differences school-by-school that may be found in participants' direct reports of their experience with these schools.

Methodology

Student attrition rates had to be computed from a file that had been constructed by the district's data processing division to analyze student mobility for each school in the district for the period June, 1977 through June, 1979. These mobility analyses included data on both school in-migration and out-migration in several components. The in-migration statistics were outside the concept of attrition adopted for the study, and the out-migration statistics included student loss due to graduation from eighth or twelfth grade. But the files contained an entry for each student enrolled in a district school at the base date, and provided data needed for this study: student name; identification number; race; school location code for June, 1979: and grade as of June, 1977.

SLPS Attrition and Enrollment Trends

Attrition rates calculated for all schools (presented in Table 1) indicate opposite trends for black and white students in magnet and regular schools. Black student attrition from magnet schools, though substantial, is somewhat less than black attrition from regular schools. By contrast, white student attrition from magnet schools is higher than white attrition from regular schools, and considerably so at the secondary level. Moreover, white student attrition from magnet schools is markedly greater than that of black students from magnet schools. The greater difference is clearly at the secondary level.

Table 1

Comparative Rates of Student Attrition

Magnet and Regular SLPS
June, 1977 - June, 1979

Student Race	Magnet Elementary Schools (a) (n=6)	Regular Elementary Schools (n=107)	Magnet Secondary Schools (b) (n=2)	Regular Secondary Schools (n=10)
Black	43%	49%	33%	36%
White	56%	51%	56%	42%

Note: Attrition rates are calculated as percent of enrollment on initial date (June, 1977) lost by terminating date (June, 1979) of two-year interval of study.

(a) Enrollment data for only six of eight magnet elementary schools were suited to this analysis of attrition rates (see p. 10)
(b) Enrollment data for only two of three magnet secondary schools were suited to this analysis of attrition rates (see p. 10)

Student attrition is one factor affecting net student enrollment. In the St. Louis Public Schools, net loss of students, black and white, has occurred each year since 1968-69. Figures for the four years during which magnet schools were in operation and the current school year are presented in Table 2a.

Table 2a
SLPS Student Enrollment, By Race, Last Five Years

School Year	District Total	Total Black	%Black	Total White	%White
1976-77	81,748	58,148	71.7	23,600	28.3
1977-78	77,215	55,934	72.4	21,281	27.6
1978-79	72,014	53,525	74.3	18,489	25.7
1979-80	67,592	50,991	75.4	16,601	24.6
1980-81	61,892	48,939	79.1	12,953	21.9

In the district as a whole both black and white student enrollments dropped off, with the number of white students decreasing at two to three times as fast as that of blacks on the average. (Although not shown in Table 2a, the pattern of enrollment decline for both student groups applies to the elementary and secondary level alike.) The results of these trends are fewer and fewer black and white students and an ever-increasing proportion of black students in the overall enrollment.

Magnet School Enrollments and Attrition

Given the parallels between magnet school and system wide student attrition rates, it would be reasonable to suspect a corresponding influence of attrition on magnet school enrollments. Obviously, the situation of the district overall and that of the magnet school program are somewhat different with respect to current and potential sources of student clientele. Yet, magnet school enrollment figures for the four-year period before mandatory system-wide desegregation do show apparent evidence of a trend toward declining enrollment. Table 2b summarizes these figures.

Table 2b
Student Enrollment in Magnet Schools, By Race
Prior to District-Wide Mandatory Integration

School	Total Magnet Program	%Black Students	%White Students	Black Students			White Students		
				Total	Elem	Sec	Total	Elem	Sec
1976-77	2167	55.8	44.2	1209	1033	176	947	851	96
1977-78	3564	62.3	37.7	2222	1752	470	1324	1084	240
1978-79	3639	68.2	31.8	2481	1907	574	1142	858	284
1979-80	3510	69.3	30.7	2433	1858	575	1077	798	279

The most conspicious pattern in the figures is the continuous rise in the proportion of black students in the overall magnet enrollment. White student enrollment peaked in the second year of the program. It dropped off in the third year because fewer white students enrolled in the elementary magnets, and dropped off further in the fourth year because fewer whites enroll in the elementary and secondary magnets. Black student enrollment grew in each of the first three years, but fell off slightly in the fourth year because fewer black students enrolled in the elementary magnets.

Greater weight may be given to the evidence of decline in overall, black, and, particularly, white enrollment that is most apparent in the fourth year of the magnet program when data from individual schools (not presented) are considered. These fourth-year data indicate dropping off of black student enrollment in four of seven elementary mag- schools not affected by significant program or site changes and in two of three secondary schools. Decreases in white student enrollment were recorded for five of the elementary and two of the secondary magnets.

None of the raw figures on decline in magnet schools enrollments is, by itself, certain proof student attrition was producing changes threatening the viability of the magnet school program. However, the combined evidence of declines viewed in the context of district-wide trends does indicate the possibility of seriously diminished student clientele for the program. The fact of student attrition still remains an important consideration in planning for magnet schools as the primary optional component of the mandatory desegregation plan. In response to these concerns, we investigated the statistical character of student attrition in magnet schools and sought correlates of these statistics in the reports of magnet school participants themselves.

Attrition in Individual Magnet Schools

System mobility file data allowed calculations of attrition rates for individual magnet schools and these rates became the starting point for our research. For each school the status after two years of all students included in the base enrollment (June, 1977) was categorized in one of three ways on the basis of comparison of the first (June, 1977) and second (June, 1979) school location codes:

(1) students with the same school location code were categorized <u>same status</u>

(2) students with another SLPS non-magnet school location code were categorized <u>attrition by transfer</u>

(3) students with no SLPS school location code for the second entry were categorized <u>attrition by withdrawal</u>

Students in grades seven and eight and in grades eleven and twelve could not be included in the analysis because they would be expected to show a different school code or no school code for the second entry as a result of eighth or twelfth grade graduation. In addition, two elementary schools and one secondary school were omitted from the analysis. The student populations and

locations of the two elementary schools were changed radically during the period of the study. The secondary school had no students enrolled in June, 1977. Table 3 presents results of the attrition analysis for each magnet school.

Table 3
Rates of Student Attrition for SLPS Magnet Schools,
By Race and Status, 1977-79

School	Combined Overall	Black Overall(a)	White Overall(b)	Transfer Black(c)	Transfer White(d)	Withdrawal Black(e)	Withdrawal White(f)
EL-1 (ELo) (n=244)	32% (78)	21%*o+ (26)	43%*o (52)	11%o (14)	15% (19)	10%*o# (12)	28%*o (33)
EL-2 (n=174)	37% (64)	26%* (25)	49%* (39)	12% (11)	9% (7)	14%* (14)	40%* (32)
EL-3 (ENo) (n=73)	42% (31)	49%o (17)	37%+ (14)	26%o (9)	24% (9)	23%# (8)	13%+ (5)
EL-4 (n=143)	45% (64)	33%* (26)	58%* (38)	17% (13)	22% (14)	16%* (13)	36%* (24)
EL-5 (n=304)	48% (145)	38%* (51)	55%* (171)	14% (19)	16% (28)	24%* (32)	39%* (66)
EL-6 (EHi) (n=231)	53% (122)	41%*+ (54)	68%*+o (68)	13% (17)	13% (13)	28%*o (37)	55%*+o (55)
SC-1 (SLN) (n=111)	34% (38)	29% (18)	41%# (20)	5% (3)	2% (1)	24% (15)	39%# (19)
SC-2 (SHi) (n=125)	46% (58)	36%* (31)	68%*# (27)	14% (12)	5% (2)	22%* (19)	63%*# (25)

NOTE: Attrition rates are calculated as percent of base enrollment (June, 1977) lost by terminating date (June, 1979) of two year interval of study.

* χ^2 value for difference between rates in columns "a" and "b" or between rates in columns "e" and "f" is significant at $p < .01$

+,o χ^2 value for difference between rates in the same column both designated by "+" or "o" is significant at $p < .01$

\# χ^2 value for difference between rates in the same column both designated by "#" are significant at $p < .05$

Schools are arranged in Table 3 in ascending order of combined (both races) overall rates of attrition. Elementary schools (designated by a code beginning with "EL") are separated from secondary schools (designated by a code beginning with "SC"). The five schools included in the survey interview research are set off by a box and a second code used to identify them for the interview study is shown as well. The number of file cases used to calculate all attrition rates is just beneath the school code.

Several types of attrition rates and associated raw totals are presented. The combined overall attrition rate represents the total loss of students from the base enrollment. Rates of attrition are also shown for black students as a group and white students as a group. These rates by racial group are further broken down to indicate how transfer and withdrawal, respectively, have contributed.

Data in Table 3 may be briefly summarized. First, rates of attrition for black and white students are significantly different for all but two schools. This difference occurs for overall attrition rates and rates for attrition by withdrawal. Second, higher, overall attrition rates appear to be most associated with higher rates for white student withdrawal, although schools with the highest rates generally show higher rates for black student withdrawal. Between-school differences, where significant, are also indicated in each column in which they occur.

The parallels between the data of Table 3 and district-wide attrition and enrollment patterns is striking. The major component of student loss is withdrawal from SLPS. Further, withdrawal of white students is proportionately greater than that of black students. The statistics suggest that the magnet program is substantially affected by the same contextual factor of student out-migration, particularly white student out-migration, as the district overall. Yet, attrition data indicate that magnet schools have not all experienced the same degree of student loss. Thus, the

contextual factor of student out-migration appears to affect schools differently. How this might be the case is the chief interest of the second part of this study.

The Follow-Up Interview Study of Magnet School Parents

To help further describe the nature of magnet school attrition we conducted a telephone survey in June, 1980 of the parents of students enrolled in five of the schools listed in Table 3. Three elementary schools were selected for the study. They are the schools with the lowest combined overall attrition rate (coded ELo), the highest combined rate (EHi), and the one with no significant differences between the rates of black and whites in any category (ENo). Both secondary schools were included. Their combined overall attrition rates differ substantially and are located, respectively, near the lower (SLN) and upper (SHi) ends of the observed range of attrition rates for all magnet schools. In addition, rates of attrition for blacks and whites are significantly different for one of the secondary schools (SHi), but not the other (SLN).

The district student mobility file data were used to construct rosters for the telephone survey of magnet school parents. Rosters were stratified by school, race, and enrollment category. Students were randomly sampled only from the "same status" category, and only for black and white students at ELo and black students at EHi. All students in the "attrition by transfer" and "attrition by withdrawal" categories were included in the survey roster because numbers were too low to justify sampling. Students' home addresses and telephone numbers were not available in the student mobility files and had to be taken from other central system student information files or from student records maintained in the schools. All three of the original rosters--the "same status" sample and the "attrition-transfer" and "attrition-withdrawal" files -- were reduced 5 to 10 percent by missing, out-of-date, or discrepant data that precluded even an attempt to contact the student's family by phone.

A brief interview protocol was prepared to gather several sorts of information from parents (or guardians) of students on the rosters. Two of the interview items are directly related to the purpose of this study. These are questions concerning (1) the parent's decision (or the joint decision of parent and child where the decision was joint) to enroll the student in a magnet school, and (2) the principal reason for continuing, transfering, or withdrawing during the two-year interval of the study. These two questions were answered by all respondents reached by telephone. Other questions in the protocol were intended to gather information on parents' and students' attitudes toward the school of enrollment and the means through which information about the magnet school program was first received. The latter questions received proportionately many fewer responses and the information generated is less germane to this analysis of student attrition.

The single greatest problem in the survey was inability to make contact with respondents. All respondents who were contacted were willing to be interviewed and answered at least several of the questions, including the two that generated data for this analysis. Failure to contact families is, in many instances, information itself because these are families who have moved out of the city, and have withdrawn children from the public schools. In other instances, non-contact has to do with the status of a family's telephone service and indicates nothing about change of residence as a reason for children not attending school. Table 4 summarizes the composition of the interview study sample.

As would be expected, the higher rates of telephone contact (excluding roster entries for which no telephone number was available) were in the "same status" and "transfer" categories. Yet, even in these categories there appears to have been some loss due to withdrawal from the district. No systematic attempt was made to check the status of the students as of the date of the telephone survey in June, 1980.

Table 4

Raw Totals for Survey Rosters and Contacted Sample,
By Student Race and Enrollment Status

School	Black Students						White Students					
	Same Status		Transfer		Withdrawal		Same Status		Transfer		Withdrawal	
	Roster	Contacted	Roster	Contacted	Roster	Contacted	Roster	Contacted	Roster	Contacted	Roster	Contacted
ELo	50+	42	14	10	12	3	50+	40	19	14	33	12
ENo	35	30	9	7	8	5	24	19	9	8	5	2
EHi	50+	39	17	13	37	9	32	26	13	11	55	18
SLN	44	35	3	2	15	12	29	18	1	0	15	9
SHi	54	43	12	7	19	14	13	10	2	1	25	17

+ Total represents a random sampling from the mobility file.

Note 1: All other totals under "roster", except those marked with "t" represent all entries in mobility file meeting the definition of the enrollment category.

Note 2: No attempt could be made to contact approximately 5-10% of the survey rosters because no telephone number was available for these families.

Information as to whether a student was bused to school was not contained in any files or records used to generate the interview rosters. We attempted to determine from home address whether students lived far enough away from the school of enrollment to be transported. Examination of street addresses indicated less than 5% of the contacted sample and less than 10% of the rosters were students living close enough to school to walk. Thus, we eliminated from our analyses the few students living within the close vicinity of the school.

The Process of Analysis

Several results of the statistical analysis of enrollment data especially influenced our subsequent examinations of the interview data. We hoped to locate differences that would correspond to the statistically significant differences in black and white students' rates of withdrawal from the same school. We attempted to find differences as well between schools that would match the clear statistical differences between schools in their rates of student withdrawal, particularly white student withdrawal. Further, we were interested in any differences that might surface from the interview data characterizing the groups of students that remained enrolled in the same school over the two-year interval of study. These latter differences, while they would be only indirect evidence on the question of attrition in a strict sense, nevertheless may be viewed as indicating differences in the types of students attracted to each of the magnet schools. The type of student attracted to a school may well say something about the likelihood of this student to leave.

Examination of the interview data consisted of a sequence of three searches:

(1) search for differences between students (by race) within schools and enrollment categories

(2) search for differences between schools within enrollment categories by race

(3) search for differences between enrollment categories within schools by race

The statistical representatives of the interview data is open to question because of small sample sizes in almost all enrollment categories, and particularly in the "transfer" and "withdrawal" categories. Thus, claims for validity of the analyses which follow must rest upon the observed congruence of interview findings with the previous analyses of student attrition and with the working knowledge of those who have been closely involved with the magnet program through its history.

The interview component of this study must be considered more exploratory than conclusive. Findings are very suggestive, however, of differences in the types of students that may be attracted to individual magnet schools. The nature of the decision to first attend a magnet school appears to be a critical variable. If this can be substantiated in other studies, a powerful tool for predicting school enrollments and for counseling students effectively into the magnet school program would be at hand.

We considered all response data on both variables of interest, initial decision to attend and principal reason for leaving, that were generated from the three searches described above. All comparisions that proved to be significantly different at $p < .10$ are reported in the following analyses. The analyses are organized and presented by school. As some data are from between-school comparisions and refer to more than one school, there is some redundancy in reporting. When redundancy occurs, the lengthier discussion is given to the school for which the data address a defining or distinguishing characteristic.

The Elementary Schools: EHi

EHi offers students a specialized program focusing on the basic concepts, principles, and theories of science, with special emphasis on the biological sciences, plant and animal ecology and astronomy. Inquiry activities are stressed, and these center on the scientific processes of observation, classification, measurement, communication, evaluation and prediction. The specialty program is conducted largely through regular

classroom instruction and is intended to be integrated with other subject areas as much as possible. The school is located in a largely institutional and commercial setting, adjacent to a major hospital and medical school complex. The residents that do live in the vicinity of the school are mostly tenants, white, and students or young working or professional adults.

EHi possesses several characteristics of interest: relatively high attrition rates for all students, and distinctively high rates for white student withdrawal. Differences between black and white student attrition rates are clear. They are statistically significant for students who have withdrawn from the school.

Interview data produced statistically significant differences between the responses of black and white students on the variable initial decision to attend for all three enrollment status categories. No significant differences were found, however, on this variable for responses between enrollment status categories for students of the same race. Further, no significant differences between EHi students were found at all in data on the variable principal reason for leaving. Parents of EHi students and parents in the other two elementary schools, cited general dissatisfaction, personal reasons, and the desire for another kind of school as the chief reasons for withdrawing from the school in favor of a non-SLPS alternative. Of course, these are the answers of families that were contacted. Most families in the "withdrawal" status categories were not contacted, indicating they likely have moved out of the city.

The black-white differences that occur in all three enrollment status categories appear to be essentially of the same character. (See Tables A1, A2, and A3) The most frequent reasons given by the parents of black students (in all enrollment

status categories) for the initial choice of EHi were, in order, location of the school, the specialty program offered, and EHi's purpose as a magnet school. By contrast, the reasons given by white students (in all enrollment status categories) for the initial choice of EHi were, in order, the specialty program offered and EHi's purpose as a magnet school. That friends or relatives were attending the school and the school's location were infrequently given reasons.

The consistency of black-white differences over all enrollment status categories permits some confidence in inferring that the groups of black and white students attending EHi during the interval of the study are fairly homogeneous within themselves, but distinct from one another.

That the variable producing significantly different data is initial decision to attend rather than reason for leaving may be surprising, but the initial decision variable proved generally to be the more discrinimating variable in our research. Of course, the variable initial decision to attend may itself prove to be explained by another or other variables that more adequately capture differences and similarities among magnet school participants.

A speculation on one possible combination or joint influence of variables concerns factors of general mobility and accessibility to school. The higher proportions of black families choosing EHi for reasons of school location may indicate that EHi is geographically more accessible to blacks and within this group that is potentially identifiable geographically, many are highly mobile families. (Remember that "geographical access" does not mean living in the neighborhood, because students we identified as living within one mile of the school were eliminated from the study.) The percentage of "same status" blacks citing choice based on school location is

noticeably lower. This would be expected if "same status" blacks were those who had less geographical access to the school and are not members of the same mobile population. (However, no statistically significant differences were found between enrollment status categories for blacks or for whites with respect to differences in the frequencies of all responses given.)

It is interesting to note further that blacks in the "same status" category more frequently cited the school's specialty program than blacks in the other enrollment categories as the basis for their initial decision but whites in the "same status" category responded somewhat less frequently than whites in the other enrollment categories that the school's specialty program was the reason for choosing EHi.

The data indicate reverse trends for black and white students. White students are from areas that appear less geographically accessible, but from families generally more mobile. They more frequently choose the school for its specialty program. Black students appear generally to be from areas geographically more accessible to EHi (and perhaps geographically identifiable). They are less mobile than white students, but more mobile than the black population as a whole. Again, they less frequently choose the school, especially in the "transfer" and "withdrawal" categories, for its specialty program.

Table A1

"Same Status" Respondents' Reasons For Initially Deciding To Attend EHi

Student Race *	School Location	Specialty Program	Friends/Relatives Attending	Magnet School Purpose	Fewer Students	Other
Black (n=39)	21% (8)	38% (15)	8% (3)	23% (9)	8% (3)	2% (1)
White (n=26)	8% (2)	50% (13)	8% (2)	35% (9)	—	—

* χ^2 value for difference in response frequencies of the two groups at $p < .10$

Table A2

"Transfer" Respondents' Reasons Reasons For Initially Deciding To Attend EHi

Student Race *	School Location	Specialty Program	Friends/Relatives Attending	Magnet School Purpose	Fewer Students	Other
Black (n=13)	46% (6)	15% (2)	—	31% (4)	—	8% (1)
White (n=11)	9% (1)	55% (6)	18% (2)	18% (2)	—	—

* χ^2 value for difference in response frequencies of the two groups at $p < .10$

Table A3

"Withdrawal Status" Respondents' Reasons For Initially Deciding To Attend EHi

Student Race *	School Location	Specialty Program	Friends/Relatives Attending	Magnet School Purpose	Fewer Students	Other
Black	44%	22%	11%	11%	—	11%
(n=9)	(4)	(2)	(1)	(1)	—	(1)
White	—	61%	6%	27%	—	6%
(n=18)		(11)	(1)	(5)	—	(1)

* χ^2 value for difference in response frequencies of the two groups at $p < .10$

ELo

ELo offers all students an individually guided instructional program in all self-contained or departmentalized classrooms, kindergarten through grade eight. A comprehensive system of diagnosis of student learning and prescription of study is the heart of the specialty program.

The school locale is primarily residential, but a significant commercial and industrial component is also present. Residents of the area are primarily white, working or lower middle class. Housing is divided among strictly rental, owner-occupied/rented, and single-family-owned units. ELo was selected for the study as the school with the lowest overall rate of attrition. The associated black attrition rates are low and the white rates are moderate.

As with EHi, data on the variable initial decision to attend has produced significant differences between black and white ELo students in the "same status" category. (See Table A4) In contrast to the EHi data, however, parents of "same status" white students more frequently cited the school location, and somewhat less frequently cited the school's specialty program as the reason for choosing to attend ELo. The difference between "same status" white students in EHi and ELo is statistically significant also. (See Table A5) This difference parallels the difference in white overall attrition rates for the two schools as presented in Table 3.

The difference between "same status" black and white students at ELo (Table A4) is not surprising in light of the differences in the overall attrition rates for black and white students at ELo (Table 3). A similar pattern characterizes also the responses of black and white students in the "transfer" category, but this difference is not quite at the $p < .10$. (No comparisons were possible for black ELo students in the "withdrawal" category because the number of respondents was

too low. The summary of responses for white students showed the specialty program reason more frequently cited and the school location less frequently cited than for "same status" white students although the difference was not significant.)

A comparison of responses for white students at ELo and EHi indicates that for whites greater accessibility to a school may be associated with lower attrition. The reverse appears to be true for black students at the two schools. Further evidence of the greater mobility of black students at EHi, the school of apparently greater access to blacks, is provided in response data for black "transfer" students at both schools on the question of reason for leaving. (Table A6) More students at EHi transferred because they moved to a different residence, while ELo students transferred because of transportation problems. (Again, no data for ELo black withdrawal students are reported because of the few respondents in the sample.)

One consistency across the two schools does appear in the data for black students. At both schools black students in the "same status" category cite choosing the school for its specialty program more frequently than those in the "transfer" or "withdrawal" categories. (Differences do not quite reach statistical significance in all categories) But the reverse appears true for white students: the specialty program choice is more frequently cited in the "transfer" and "withdrawal" categories. Apart from the influence of geographic accessibility, black and white students appear to differ in relation to their initial decision to attend the school. Black students choosing a school for its specialty program are less likely to be found in the "transfer" or "withdrawal" categories, but the opposite is true for white students. These differences between black and white students are noteworthy. How they tie to larger factors of mobility cannot, of course, be determined from this study. But the differences are there. They substantiate the presence of individual

Table A4

"Same Status" Respondents' Reasons For Initially Deciding
To Attend ELo

Student Race *	School Location	Specialty Program	Friends/Relatives Attending	Magnet School Purpose	Fewer Students	Other
Black (n=42)	5% (2)	45% (19)	9% (4)	31% (13)	5% (2)	5% (2)
White (n=40)	38% (15)	40% (16)	5% (2)	7% (3)	5% (2)	5% (2)

* χ^2 value for difference in response frequencies of the two groups at p .10

Table A5

White "Same Status" Respondents' Reasons for Initially Deciding
To Attend Magnet School

School	School Location	Specialty Program	Friends/Relatives Attending	Magnet School Purpose	Fewer Students	Other
Elo (n=40)	38% (15)	40% (16)	5% (2)	7% (3)	5% (2)	5% (2)
EHi (n=26)	8% (2)	50% (13)	8% (2)	35% (9)	—	—

* χ^2 value for difference in response frequencies of the two groups at p .10

Table A6

Black "Transfer" Respondents' Reasons For Leaving The Magnet School

School *	Personal Reasons	Transportation	Dissatisfaction With Specialty Program	Moved To New Residence	Preferred Another School	Other
ELo (n=10)	10% (1)	60% (5)	—	10% (1)	10% (1)	10% (1)
EHi (n=13)	8% (1)	23% (3)	8% (1)	46% (6)	15% (2)	—

* χ^2 value for difference in response frequencies of the two groups at p .10

school differences as indicated the statistical patterns of attrition. Conceptions of the present data would require refinement by more intensive study of individual schools and their participants. But this study should provide a warrant to do so and place to start.

ENo

ENo, during the period under study, was a grade 5 through 8 school located in a building also housing kindergarten through fourth grade classes. Its specialty offering is the arts. Children are provided 1½ hours of daily instruction in one of the visual and performing arts taught: visual art, dance, drama, vocal music, instrumental music, and creative writing. Students may choose two arts to study; a "major" art in which they are involved three times and a "minor" art in which they are involved twice a week. A staff of specialist teachers provides training and instruction within the "art block" period of one and one-half hours per day.

The school is located in a white, middle class area. The locale is primarily residential, although a commercial segment of small retail and service businesses constitutes an important element as well. ENo was selected from the group of elementary magnets as the only one where no significant differences were found between the attrition rates of white and black students. The white attrition rate is the lowest of all magnet schools, and particularly low for the "withdrawal" category. The overall rate for black students, however, is the highest of all magnet schools and particularly high for the "transfer" category.

Interview data for ENo are difficult to interpret for several reasons. The ENo data appear to contradict patterns observed in the other two schools, few significant differences in the response frequencies were found for all comparisons

made, and data on the "withdrawal" status students, black and white, are too limited to be entered into the analysis. ENo clearly represents a unique case, but it cannot be considered outside the bounds of this analysis if ultimately the methods employed here are to be useful in comprehensive assessment and planning.

None of the comparisons of response data within enrollment status categories on the basis of race produce statistically significant differences between black and white students. Similarly, none of the computed attrition rates for ENo (Table 3) were significantly different for race of student. A somewhat greater proportion of black families initially chose to attend ENo for its specialty program, and a somewhat greater proportion of whites chose the school because of its purpose as a magnet school. However, the most frequently cited reasons for blacks and whites alike was the appeal of the specialty program.

The more revealing and puzzling data are those generated in cross-school comparisons. Virtually none of the families in our sample, black or white, chose ENo on the basis of location, so ENo does not appear to be geographically accessible to families of either race. This evidence in conjunction with the data on initial decision to attend, taken in light of previous analyses of the other schools, would lead us to expect a fairly high rate of white attrition as at EHi and a relatively low rate of black attrition as at ELo. The reverse is true.

ENo is especially distinctive by its relatively low rate of white student withdrawal and its relatively high rate of black student transfer. Our interview data do not provide direct evidence on the issue of white withdrawal. The data available on white students clearly indicate this is not a group that may be characterized as substantially having geographical access to the school. A comparison of responses for "same status" white students at ENo and ELo demonstrates the differences in

geographical access of these two groups. (See Table A7) Yet the two groups are similar in other rates of attrition. Apparently, ENo may also draw a white student population that is not representative of the larger white student population with respect to geographical mobility. (The ENo population may, of course, be geographically identifiable but not by the characteristic of assessiability to the school. Yet, the data also indicate that the white ENo population may be mobile in another sense, the sense of social mobility. If a sort of social mobility lies behind the relatively high rate of attrition by transfer then the relationship between decision to attend for the specialty program and high mobility observed in the other two elementary schools would hold in part.

Data on attrition by transfer may also be the key to understanding black attrition for ENo. Although the difference is not significant, parents of black "same status" students more frequently cited the school's specialty program as the reason for attending ENo than parents of black "transfer" status students. This difference more closely parallels findings for both EHi and ELo black students where lower attrition rates were generally associated with higher frequency of decision to attend on the basis of the school's specialty program.

A significant difference was produced in the second variable, reason for leaving, in the responses of black transfer students at ENo and EHi. (Table A8). Answering the question of why their children left the school, black parents from ENo more frequently cited personal reasons and transportation problems than black parents from EHi who more frequently cited moving to a new residence, dissatisfaction with the school's specialty program and other reasons. Transfer-by-attrition is the factor most distinguishing black ENo students from their counterparts in the other school. As with the white students in the school, themobility of black students may be more social in some sense than geographical in nature.

Table A7

White "Same Status" Respondents' Reasons for Initially Deciding To Attend Magnet School

Student Race *	School Location	Specialty Program	Friends/Relatives Attending	Magnet School Purpose	Fewer Students	Other
ENo (n=19)	—	53% (10)	10% (2)	32% (6)	—	5% (1)
ELo (n=40)	38% (15)	40% (16)	5% (2)	7% (3)	5% (2)	5% (2)

* χ^2 value for difference in response frequencies of the two groups at $p < .10$

Table A8

Black "Transfer" Respondents' Reasons For Leaving Magnet School

Student Race *	Personal Reasons	Transportation	Dissatistaction With Special Program	Moved To New Residence	Preferred Another School	Other
ENo (n=7)	29% (2)	57% (4)	—	—	—	14% (1)
EHi (n=13)	8% (1)	31% (4)	15% (2)	38% (5)	8% (1)	—

* χ^2 value for difference between response frequencies of the two groups at $p < .10$

The overwhelming emphasis given by ENo families to the school's specialty program as the reason for initially deciding to attend does not stand in the same relationship to attrition rates as was observed in the other two schools. For white ENo respondents, this emphasis is generally tied to lower attrition rates and for black ENo respondents this emphasis is generally tied to higher attrition rates. However, rates for attrition by transfer are relatively high for both black and white students and it is in transfer by attrition that a distinct mobility, social rather than geographic, may be manifest for both black and white students. The ENo specialty program is quite different in character from the programs at ELo and EHi, focusing on the arts rather than academics and being conducted by specialist teachers independent from the regular classroom program of instruction. It is possible, that, although the citation of "special program" appears as the same response from all three groups, it may have a different meaning for the ENo parents than for EHi and ELo parents.

Summary

Interview data from the elementary parents have produced differences that reflect in many ways the differences in attrition rates computed from the district's computer-based files in student mobility. The ways in which the interview data appear to correspond to or account for the statistical data vary among the three schools included in the study. However, statistically significant differences in response frequencies were found to occur most often between black and white students in the same school and next most often across schools for students of the same race and enrollment status categories. We found no significant differences between students in different enrollment status categories in the same school and of the same race. That this sort of difference did not occur indicates that the schools have attracted student populations that display reasonably uniform charac-

teristics as racial groups, though the racial groups may differ considerably from one another.

The reasons parents cited for initially deciding to attend a magnet school proved to be the variable most frequently producing significant differences, though these differences stood in various relationships to the attrition statistics of the school. In the two schools showing significant black-white differences in attrition rates, the reasons given for initial decision to attend appear to be tied to attrition in opposite ways for black and white families. Higher black attrition appeared more strongly linked to a decision to attend because of school location, where higher white attrition appeared to be linked to a decision to attend because of the school's specialty program. It is likely that decision to attend because of school location is a function of geographical access. Access, in turn, may be the geographic identifier for populations that demonstrate certain types and degrees of mobility, geographic and social.

With respect to the third school, where statistical and interview data did not indicate significant black-white differences, the behavior of both groups appeared more alike and contrasted with what had been found for same-race groups in the other two schools. Both black and white families cited the school's specialty program overwhelmingly as the initial reason for attending; no evidence was found to characterize either group as having particular geographical access to the school. Statistically, white attrition is the lowest in this school of all elementary magnets and black attrition is the highest. But both groups, and especially the black students, were found to have relatively high rates of attrition by transfer. Thus, the positive relationship of white mobility to decision to attend for reason of the school's special program holds up only in part, for transfer students. The negative

relationship of black mobility to decision to attend for reason of the school's special program observed in the other two schools generally is not maintained at ENo, particularly with respect to transfer attrition. Underlying this finding on transfer may be a kind of social mobility, possibly true also for white families at this school, that would not show up as withdrawal or out-migration from the district. In this case, black and white families alike may give meaning to the school's special program in the arts unlike that given by respondents at the other schools to their schools' special programs. What appears as the same response -- the school's special program as the reason for initially deciding to attend -- may in fact be very different for the several schools concerning which the response is given.

The Secondary Schools

Analysis of the secondary school data soon revealed one paramount difference between the elementary and secondary schools. Enrollment in secondary schools is much more the result of individual students' actions than at the elementary level. Most students whose families were contacted for the study had dropped out of school for one reason or another. The sample thus becomes akewed in that while most in the contacted sample are dropouts, many included on the original roster in the "withdrawal" category that were not contacted could be considered to have changed residence rather than to have dropped out of school. Any findings have to be strongly qualified in light of the largely unknown characteristics of the "withdrawal" groups in both schools not contacted.

SLN is located in a white working class neighborhood largely comprised of multiple family rented housing. The school sits adjacent to a large indistrial park housing several of the city's manufacturing firms. The school offers beginning and advanced coursework in the visual and plastic arts, photography, dance, drama, instrumental and vocal music, and creative writing.

SHi is located in a black residential neighborhood, divided among families that are predominately working and lower middle class in status. Housing is closely divided between multiple-family rental and single-family owner-occupied units. Small, commercial and service businesses are located along two major thoroughfares in the areas. The school offers as its specialty program beginning and advanced coursework in mathematics, computer science, and the physical sciences and biology.

No differences were found along racial lines between students in each of the schools. By contrast to the elementary schools, the student populations of each of the schools appear less differentiated by race and, particularly for white students, more differentiated between schools and between enrollment categories within the same school. Dropout rates are one indicator of the within-school commonalities among black and white students. Based upon responses from the contacted samples at both schools, student dropout rates by race within the withdrawal category are:

	SLN	SHi
Black:	67%	86%
White:	70%	82%

These data appear consistent with the finding of no significant differences in the interview data between black and white students in the same school.

Attrition rates were found to be significantly different for black and white students in SHi (Table 3) but our analysis of the interview data has found that blacks at the two schools responded alike. The differences in responses were greater for white students both within and across schools. (The data on dropout rates indicate greater between-school differences for black students, but all figures for black attrition at the two schools are very similar. The difference cited here is in the dropout rate as one component of attrition by withdrawal. Further, the dropout statistics, as the attrition statistics, say nothing about the underlying reasons.)

The most important difference to surface from the interview data is that between responses for white "same status" students at the two schools. (See Table A9) The lower attrition rate is associated with the white SLN group. This group is characterized by a substantial proportion of respondents citing their choice of the school for its purpose as a magnet school in addition to the majority who cited the school's specialty program. By contrast, responses from the SHi group were concentrated in the specialty program category and spread over the remaining categories so that none received a substantial number. (The "other" category includes responses that are largely unrelated but fit into none of the designated categories.)

A similar contrast in response patterns is presented in Table A9. Here a significant difference is found between the responses of white SLN students in the "same status" and "withdrawal" (dropout) categories. (Only the data for dropouts among the "withdrawal" status students were significant enough to enter into the analysis.) Responses for the SLN dropout students resembles those of the SHi white "same status" category in that parents overwhelmingly cited the school's program as the reason for attending. (The responses of the SHi white dropout group, not shown, are not significantly different from those of the SHi "same status" group and also resemble the SLN white dropout group.) The higher attrition rates associated with the SHi white students appear to coincide with a response pattern in which the school's specialty program is heavily cited as the initial decision to attend.

This association must be considered very tentative evidence as data on the other "withdrawal" category students in both schools is not available. A further uncertainty is introduced by the difference found between white SLN "same status" and dropout students. This difference could indicate that SLN white students are not a

homogeneous group, a sort of differentiation not found internal to any other racial group within a school. If this would prove true for any school, then predicting attrition would be considerably sharpened by use of collateral variables to help identify sub-groups displaying response patterns we have found associated with student attriton.

Summary

The magnet secondary schools in this study are distinct from the magnet elementary schools in several important ways. Secondary students have much more control over their own school attendance, so the issue of dropouts adds a dimension to analysis of the secondary schools not present with the elementary schools. Virtually no secondary data indicates that geographical identity of student groups is a characteristic useful to prediction of attrition.

At the secondary level differences between black and white students in the same school are not so evident, and there is some evidence to indicate that students of the same race, at a given school, particularly whites, may not be as homogeneous as same-race groups appeared to be at the elementary level.

Still, response patterns on the variable initial decision to attend may be a meaningful correlate of student attrition and allow forecasting, if not prediction strictly speaking, of future attrition trends for existing schools. A related means of anticipating student dropout should prove a very useful adjunct in the forecasting of student attrition.

Table A9

White "Same Status" Respondents' Reasons for Initially Deciding To Attend Magnet School

School *	Specialty Program	Friends/Relatives Attending	Magnet School Purpose	Fewer Students	Other
SLN (n=18)	55% (10)	6% (1)	33% (6)	6% (1)	—
SHi (n=10)	40% (4)	10% (1)	10% (1)	10% (1)	30% (3)

* χ^2 value for difference in response frequencies of the two groups at $p<.10$

Table A10

White Respondents' Reasons for Initially Deciding To Attend SLN

Enrollment Category *	Specialty Program	Friends/Relatives Attending	Magnet School Purpose	Fewer Students	Other Other
"Same Status" (n=18)	55% (10)	6% (1)	33% (6)	6% (1)	—
"Withdrawal" Dropout (n=7)	80% (6)	14% (1)	—	—	—

* χ^2 value for difference in response frequencies of the two groups at $p < .10$

Conclusions: The Present and Future

The current school year has seen implementation of a court-ordered system-wide desegregation plan in St. Louis. The previously existing magnet school program has been expanded to serve as a central component of the current plan. Magnet schools now enroll 7.9% of the total district student population and 19.2% of the student population in integrated settings. Black students enrolled in magnet schools account for 5.5% of the total black student population and 22.1% of all black students enrolled in integrated settings. White students enrolled in magnet school account for 16.6% of all white students. (All white students are enrolled in integrated settings.)

The district has had a net loss of 22.0% of its white student population and a net loss of 4.1% of its black student population since the 1979-80 school year. Net losses of 13.2% white students and 4.7% black students are projected for the 1981-82 school year. The implication of these trends for the enrollments of magnet schools, and thus for the viability and equity of the magnet school program, is clear.

The study reported here may offer a strategy to maximize the chances of the magnet school program. The immediate clientele for magnet schools, including those students now enrolled and students coming new to the district from outside the city, will in all likelihood be limited in view of the net loss of students, particularly white students, that is predicted and the fact of limited waiting lists of white students, currently for magnet schools. However, the tools we appear to have identified in our research of magnet school attrition may enable us to forecast more accurately which schools will be able to sustain meaningful enrollments in the next several years. We can collect data before the fact of attrition through entrance interviews and surveys of currently enrolled students because we are primarily interested in initial decision to attend.

The study may also have provided some knowledge of other magnet school clientele, students living inside the city but not attending public school and students living outside the city in the metropolitan region. Some of these students have actually attended St. Louis magnet schools. Their families share characteristics with many families living within and especially outside the city. We have some information on what attracted them to certain magnet schools, particularly the specialty programs and magnet school purpose of these schools. These students and others like them, may be attracted or re-attracted to city magnet schools in the context of a regional, interdistrict plan for exchange of students. Further information would be needed on the percise character of each existing magnet school's appeal of course, to support comprehensive planning, but some of this is now available from approximately 30 students from St. Louis court now attending magnet schools.

A clientele of black students for a city magnet school program, even expanded significantly beyond current scale, seems assured. But detailed planning may be necessary to develop magnet schools located outside the city that would effectively attract black students living in the city. Such schools would certainly be in the interests of equity of participation. As a practical matter, however, our research indicate that these schools may be attempting to reach a much more diverse clientele with respect to geographic and social mobility and to educational interests. For this reason some of what appears to be greater attention shown to the question of attracting students to the city may be misplaced. A potentially tougher problem may turn out to be that of establishing viable magnet schools outside the city to serve an interdistrict plan.

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